SONY

3-800-078-**21**(1)

Stereo Cassette Deck

Operating Instructions

TC-WA8ES/WR765S

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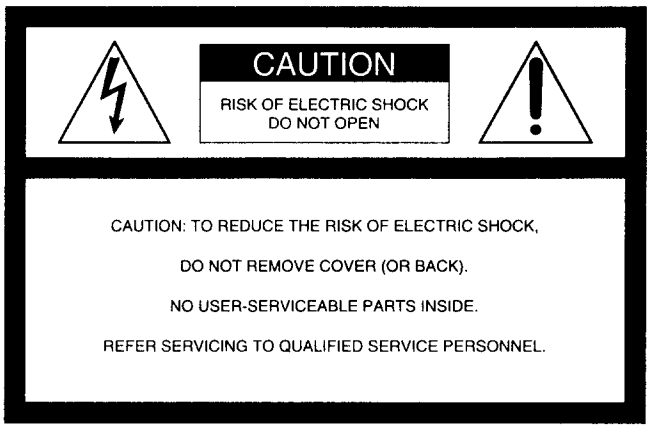
WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Owner's Record

The model and serial numbers are located on the rear of the unit. Record the serial number in the space provided below. Refer to them whenever you call upon your Sony dealer regarding this product.

Model No. _____ Serial No. _____

INFORMATION

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

— Reorient or relocate the receiving antenna.
— Increase the separation between the equipment and receiver.
— Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
— Consult the dealer or an experienced radio/TV technician for help.

CAUTION

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

For the customers in Canada

CAUTION

TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

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Features

For higher quality recording/playback

- **B, C, and S type Dolby* NR systems** which reduce tape noise.
- **Dolby HX PRO* system** for higher linearity in the tape's high-range response during recording.
- **Automatic calibration on each deck** to obtain the best recording conditions for every tape.

For your convenience

- **Automatic tape type detection** during playback and recording.
- **A relay function** for long recording and playback.
- **Auto Play function** which automatically starts playback after tape rewinding to start.
- **Simultaneous Recording function** for the simultaneous recording of the same source to cassettes in both decks.
- **Synchronized dubbing** at normal or high speed.
- **Multi-AMS and Memory Play functions** for easy access to specific selections.
- **RMS function** for playing back or recording specific selections in the order you want.

For easier operation

- **Twin easy-to-read digital counters** showing the elapsed recording or playing time on each deck.
- **An optional remote commander** for remote control of various tape deck operations.

Differences between the models

This instruction manual covers the TC-WA8ES and TC-WR765S, which are basically identical except for their place of sale.

* Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.

"DOLBY", the double-D symbol ◻◻ and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

Precautions

On safety

- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it will not be used for a long time. To disconnect the cord, pull it out by grasping the plug. Never pull the cord itself.

On operation

- When the unit is not used, turn the power off to conserve energy and to extend the useful life of your unit.
- Because of a safety mechanism, the function buttons will not operate if the cassette holder is not completely closed, if there is no cassette in the cassette holder, or if a cassette has been incorrectly inserted into the cassette holder.

On head cleaning

The head and tape path should be cleaned after every ten hours of operation. Dirty heads and a dirty tape path may cause:

— loss of high-frequency response
— loss of sound volume
— sound drop-out

On cleaning the cabinet

Clean the cabinet, panel and controls with a soft cloth slightly moistened with a mild detergent solution.
Do not use any type of abrasive pad, scouring powder or solvents such as alcohol or benzine.

If you have any questions or problems concerning your unit, please contact your nearest Sony dealer.

For the customers in the U. S. A.

For detailed safety precautions, see the leaflet "IMPORTANT SAFEGUARDS".

Unpacking

Checking the Supplied Accessories

Make sure that the following supplied accessories are included with your unit.

- Audio connecting cords (2)

Notes on Installation

- Place the unit with the front panel facing you in a location with adequate air circulation to prevent overheating of the unit.
- Do not place the unit:
  — near heat sources such as radiators or air ducts.
  — in places subject to direct sunlight, excessive dust, mechanical vibration or shock.
  — in an inclined position.
  — on a rug or other soft surfaces that would block the ventilation holes on the bottom of the unit.

Do not throw away the carton and the packing material

They will come in handy when transporting the unit or shipping it for servicing.

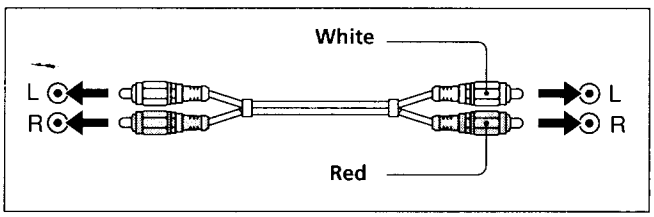
Checking the Operating Voltage

- Operate the unit only on 120 V AC, 60 Hz (U.S.A. and Canada models) or 240 V AC, 50/60 Hz (Australia model).
- Before connecting the unit to an AC outlet, be sure that the operating voltage of your unit is identical with that of your local power supply.

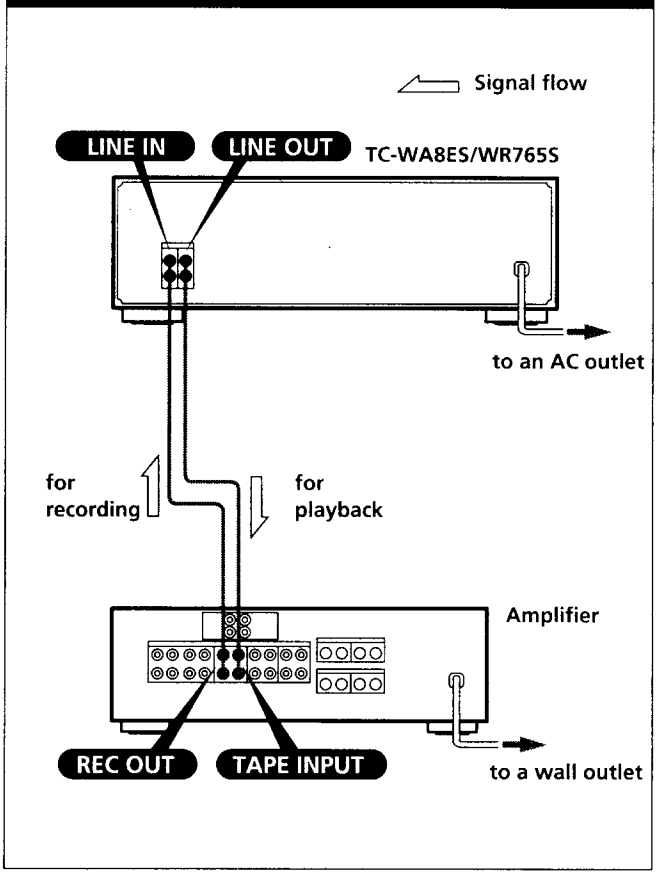
Hooking Up the System

Before You Begin

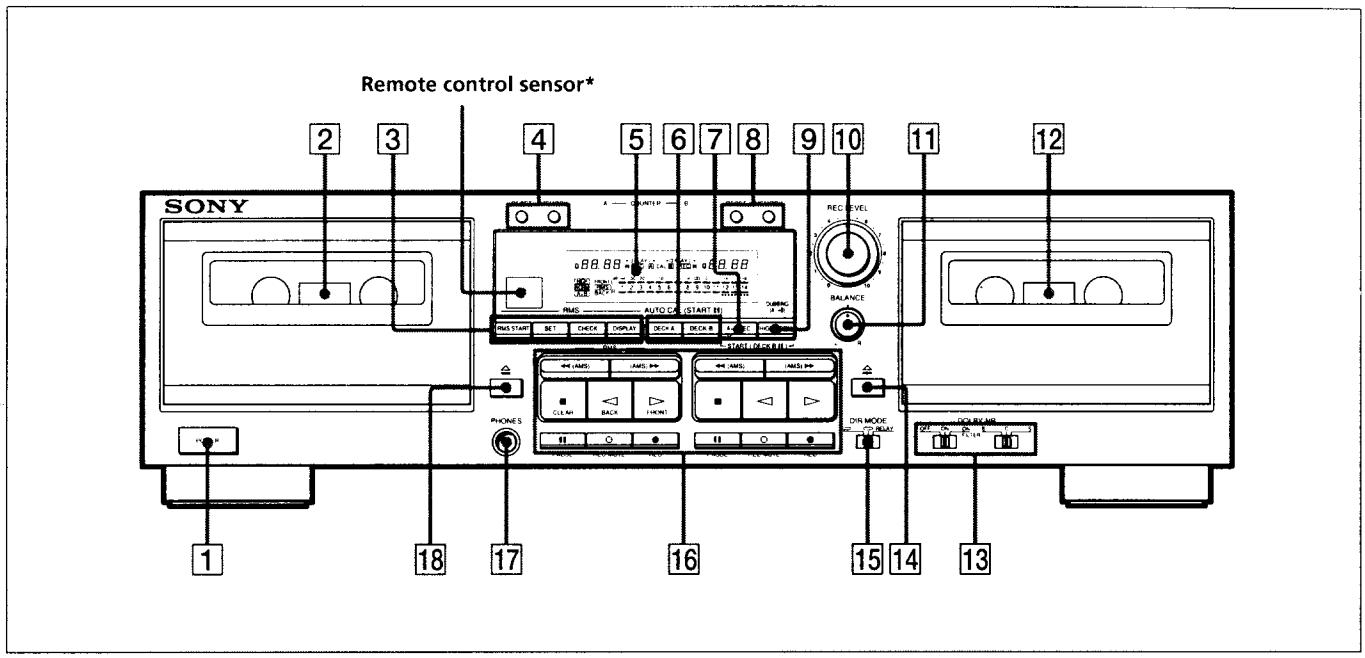
- Turn off the power to all equipment to be connected before making any connection.
- Note that the red plug of the supplied connecting cord is for right-channel (R) connection and the white plug for left-channel (L) connection.
- The connecting cords should be fully inserted into the jacks. A loose connection may cause hum pickup.



Hooking Up an Amplifier



Identifying the Parts on the Front Panel



For details, refer to the page number(s) indicated in parentheses.

1 POWER switch
2 Deck A
3 RMS** operation buttons (pages 11, 12, 20 and 21)
RMS/START button
SET button
CHECK button
DISPLAY button
4 COUNTER buttons (deck A) (pages 10 and 11)
RESET button
MEMORY button
5 Display panel
6 AUTO CAL DECK A and DECK B buttons (page 17)
7 A+B REC button (page 15)
8 COUNTER buttons (deck B) (pages 10 and 11)
RESET button
MEMORY button
9 DUBBING HIGH/NORM button (pages 19 and 20)
10 REC (recording) LEVEL control (pages 13 and 14)
11 BALANCE control (page 13)
12 Deck B
13 DOLBY NR switches (pages 7, 13, 14, 15 and 16)
OFF/ON/FILTER ON switch
B/C/S switch
14 ⏏ (eject) button (deck B)
15 DIR (direction) MODE switch (pages 7, 8, 13, 15, 16 and 19)
16 Tape operation buttons
◀◀ (leftward fastwinding)/AMS***/RMS**– button
▶▶ (rightward fastwinding)/AMS***/RMS**+ button
■ (stop)/(RMS**) CLEAR button
◁ (reverse play)/(RMS**) BACK button
▷ (forward play)/(RMS**) FRONT button
❚❚ PAUSE button
○ REC MUTE (record muting) button (page 18)
● REC (recording) button
17 PHONES jack (stereo phone jack)
18 ⏏ (eject) button (deck A)

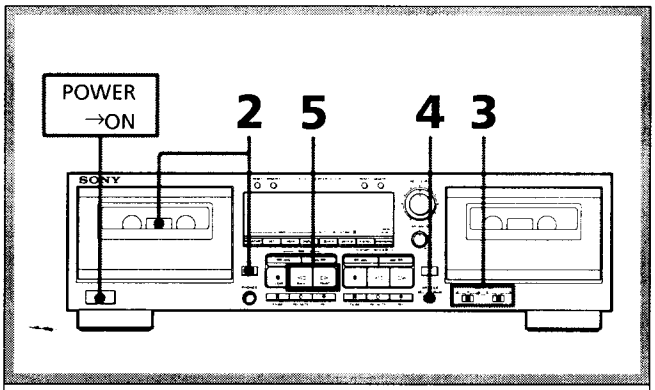
* Remote control sensor
You can remotely control this cassette deck with:
— A remote commander that came with a Sony amplifier or receiver if it has the R mark and cassette deck control capability.
— Any optional Sony remote commander with the R mark and cassette deck control capability.

** Random Music Sensor

*** Automatic Music Sensor

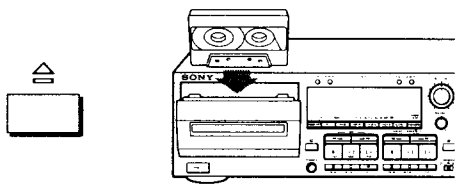
Playing Back

Follow the procedure below to play back a cassette on deck A or B.

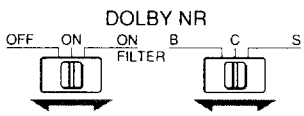


1 Turn on the amplifier and select the tape function.

2 Insert a cassette.



3 Set DOLBY NR to the same position that was used when the cassette was recorded.



4 Set DIR MODE.

To play back to the end of one side only	DIR MODE ⇄ RELAY
To play back both sides continuously*	DIR MODE ⇄ RELAY

* After playing back five times, the deck automatically stops.

5 Press ▷ or ◁ to start playback.

To play back **from the front side,** press ▷ .

To play back **from the reverse side,** press ◁ .

The tape direction lights up to show the side that is playing.

To stop playback, press the ■ button.
To stop playback momentarily, press the ❚❚ button.
To restart play, press the ❚❚ , ◁ or ▷ button.
To fastwind a tape rightward, press the ▶▶ button in stop mode.
To fastwind a tape leftward, press the ◀◀ button in stop mode.

Specifying the tape type is unnecessary

The deck has an automatic tape-type detection system.

To begin recording during playback

While holding down the ▷ or ◁ button, press the ● button.
The unit immediately begins recording without stopping the tape. This function is useful when editing previously recorded material.

When both decks A and B are in playback mode

Only playback from deck A will be audible.

What is the Dolby NR system?

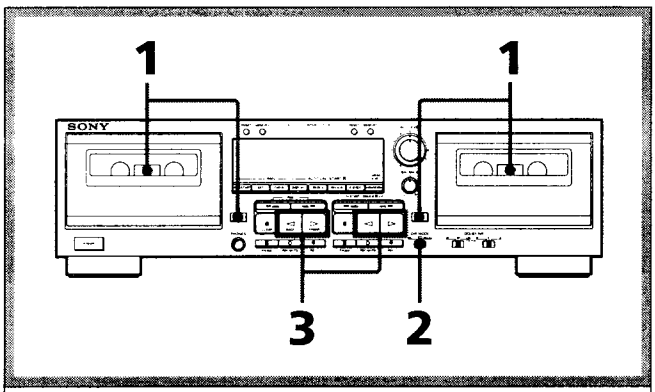
The Dolby NR (noise reduction) system reduces tape hiss noise in low-level, high-frequency signals by boosting the signals during recording and lowering them during playback.

Note

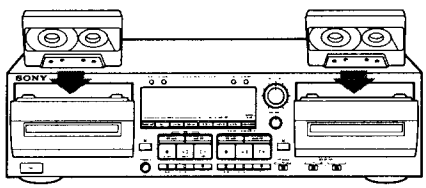
The Dolby HX PRO system works only during recording, not during playback.

Playing Back Both Decks in Succession — Relay Play

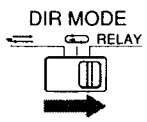
The Relay Play function plays back cassettes in deck A and deck B continuously and in consecutive order.



1 **Insert cassettes into both decks.**



2 **Set DIR MODE to RELAY.**



3 **Press ▷ or ◁ to start playback of the cassette to be listened to first.**

To play back **from the front side,** press ▷ .

To play back **from the reverse side,** press ◁ .

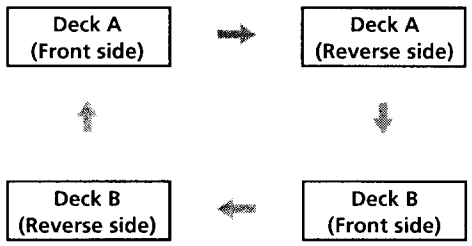
To stop Relay Play

Press the ■ button of the deck playing.

Playback sequence of Relay Play

Relay Play always follows the sequence below regardless of where playback starts.

After playing back five times, Relay Play automatically stops.

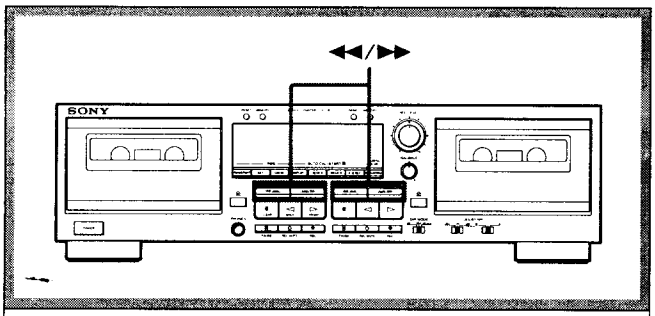


Playing back more than two cassettes in succession

Replacing cassettes that have finished playing with new ones allows you to play back two or more cassettes alternately on each deck.

Locating a Selection — Multi-AMS (Automatic Music Sensor)

Through its ability to detect the blank space between selections, the Multi-AMS function allows you to skip up to 30 selections while fast-forwarding or reversing to the beginning of a specific selection.

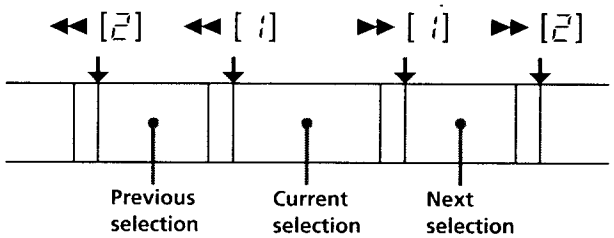


During playback, press ◀◀ or ▶▶ as many times as the number of selections to be skipped.

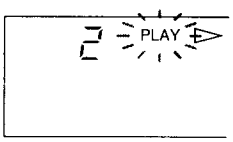
Playback direction indicator	To locate a selection after the current one	To locate a selection before the current one*
▷	▶▶	▶▶
◁	◀◀	◀◀

* Pressing ◀◀ or ▶▶ once locates the beginning of the current selection.

Tape direction indicator: ▷
↓ : Beginning of selection



- Each time the unit detects a blank space, the indicated Multi-AMS number decreases by one.
- The PLAY indicator flashes during Multi-AMS operation.
- When the beginning of the specified selection is reached, the counter indication appears again and playback automatically restarts.



Changing the indicated number of selections to be skipped

Press the ◀◀ or ▶▶ button at any time, even during Multi-AMS operation.

The Multi-AMS number may change as you are setting it

due to the detection of blank spaces as the unit begins to fastwind.

The Multi-AMS may skip a selection in the following cases:

- If you press the respective fastwinding button (▶▶ or ◀◀) immediately before the selection or immediately after the start of the selection.
- If there is noise in the space before the selection.
- If the space before the selection is less than four seconds long.

The Multi-AMS will treat the following as blanks:

- A long pause in the music
- A passage of low frequencies or very low volume
- A gradual increase or decrease in volume

The Multi-AMS does not function on both decks simultaneously

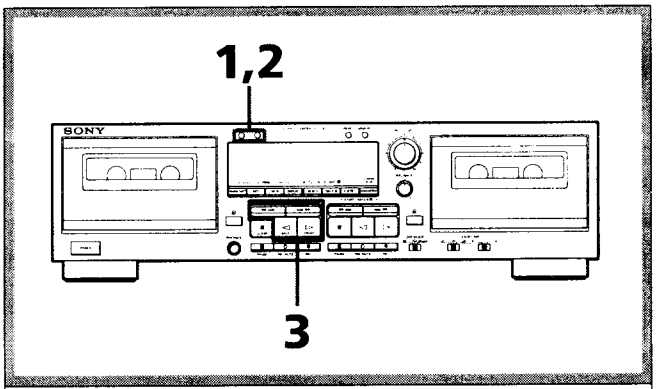
The Multi-AMS is disabled on one deck whenever the other deck is in playback, recording or pause mode.

Note

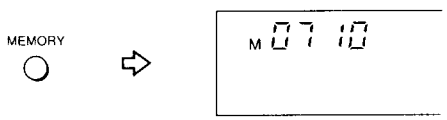
Even if the DIR MODE switch is set to ⇄, the Multi-AMS function stops when the first side ends.

Locating a Specific Position Using the Counter — Memory Play

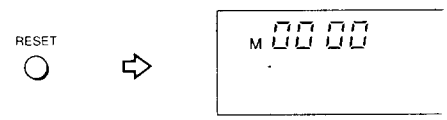
The Memory Play function allows you to use the counter to record a position on a cassette for fast relocation and automatic playback later.



1 **Press MEMORY to activate the Memory Play function of the deck to be used.**



2 **Press RESET to reset the counter at the position to be memorized.**
The position is memorized.



3 **To return to the memorized position**
Check the direction indicator and press the respective buttons shown below.

Direction Indicator	While pressing...
PLAY ▷	▷, press ◀◀.
◁ PLAY	◁, press ▶▶.

Returning to the memorized position in stop mode — Memory Stop
If you press the ◀◀ or ▶▶ button when the tape is stopped, and the M (memory) indicator is on, the tape rewinds until the counter reaches 0000, then stops.
Be sure to first stop playback before activating the Memory Stop function, otherwise the Multi-AMS function will activate.

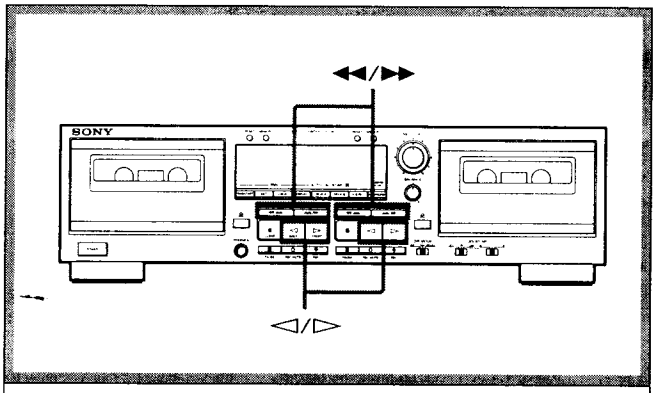
To deactivate the Memory Play function
Press the MEMORY button, turning off the M (memory) indicator.

Note on Memory Play/Stop
In actuality, the tape is rewound to slightly short of 0000.

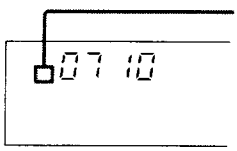
Do not turn off the power while using the counter
Turning the power off, then on again resets both counters to 0000.

Playing Back Automatically After Rewinding — Auto Play

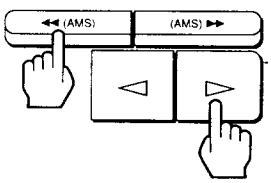
The Auto Play function automatically starts playing back a cassette after fastwinding it to the beginning.



1 **Make sure that the M (memory) indicator of the deck to be used is off.**



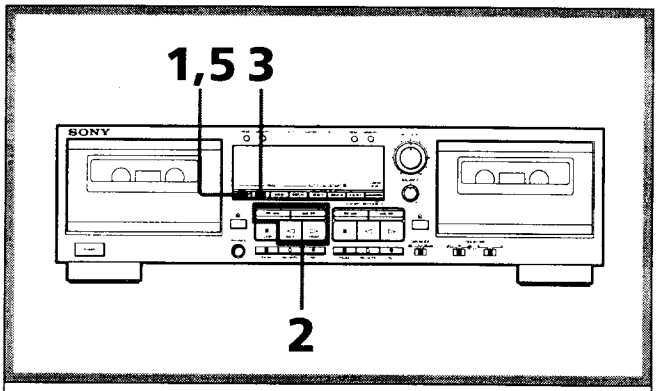
2 **While holding down ▷ or ◁, press ◀◀ or ▶▶.**



From the beginning of...	While pressing...
front side	▷, press ◀◀.
reverse side	◁, press ▶▶.

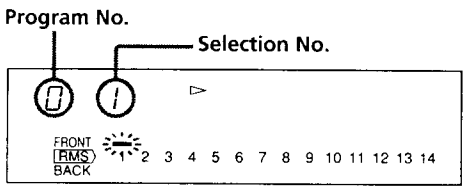
Playing Back Selections in a Specified Order — RMS Playback

The RMS (Random Music Sensor) function allows you to determine the playback order of specific selections. You can choose from selections 1 to 14 on each side of a tape in deck A to create a program of up to 28 selections.

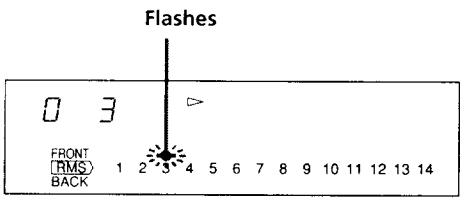


1 **While the tape is stopped, press RMS/START.**

The RMS indicator and a flashing cursor appear in the display window and the unit enters RMS mode.



2 **Press ▷ (FRONT) or ◁ (BACK) to select the front or back side of the tape, and ◀◀ or ▶▶ to specify the selection.**

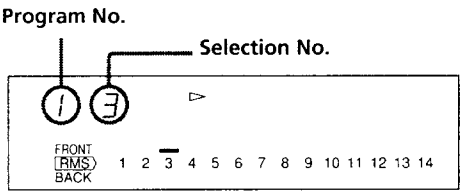


(Continued on next page)

Playing Back Selections in a Specified Order — RMS Playback

(Continued from previos page)

3 Press SET to program a selection.
The program number increases by one and the specified selection is programmed.
To program the same selection repeatedly, press SET as many times as required. The same selection is programmed for consecutive program numbers.



4 Repeat steps 2 and 3 to program other selections.
A cursor lights up to mark each programmed selection.

5 After programming the last selection, press RMS/START to start RMS playback.
The unit rewinds the tape to the beginning of the first side, then goes to the first selection using the Multi-AMS function. After RMS playback finishes, deck A remains in RMS mode.

To stop RMS playback
Press the ■ button.

To cancel RMS mode
Press the ■ button repeatedly until the peak level meter display reappears or eject the tape in deck A. When RMS mode is cancelled, the RMS program is automatically erased.

To erase the program
While programming, press the ■ button. The program number returns to 0 and the cursor flashes above selection 1 in the display window.

To add selections to a program
Press the ■ button on deck A during RMS playback, or wait until RMS playback ends, then use the ◀◀ or ▶▶ button to add new selections to the existing program.

To check the contents of a program
Press the CHECK button anytime while RMS mode is active. Pressing the button shows each programmed selection in the order they were programmed, starting with the first. Pressing the button after the last selection causes "End" to appear momentarily in the display window.

To alternate between the RMS and peak level meter displays
Press the DISPLAY button. The peak level meter display does not change if there is no RMS program.

When "FULL" flashes in the display window
This means that you have programmed 28 selections.

Notes
- During RMS playback, the CHECK, DISPLAY, ■ buttons on deck A, and the ◀◀, ▶▶, ■ buttons on deck B are operative.
- The Multi-AMS function may skip a selection if:
  — there is noise in the space before the selection.
  — the space before the selection is less than four seconds long.
- If there is a blank space of more than 13 seconds long, the unit will fast-forward the tape until the end of the blank space.
- If the unit encounters a program number that exceeds the number of selections on the tape, the unit fast-forwards the tape to the end, erases that and all excessive program numbers from the program, then continues RMS playback if program numbers for existing selections remain, or stops RMS playback if no program numbers remain.

RMS Programming Using a Sony Stereo Receiver Remote Commander

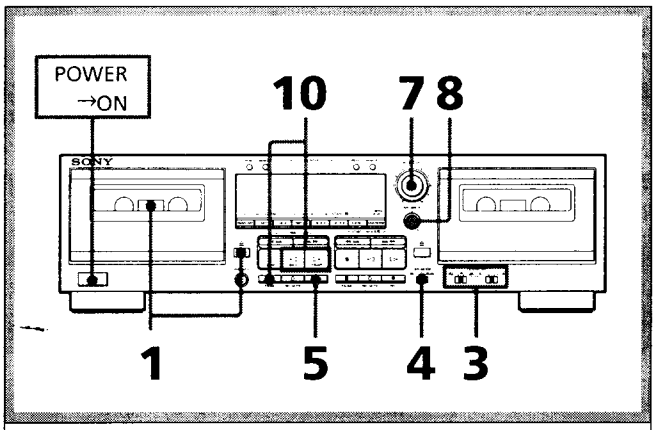
If you have a Sony stereo receiver with a remote commander with RMS operation buttons, you can use the remote commander to perform RMS programming.

1 Turn on the receiver and press TAPE.
2 Press RMS/START.
3 Press ► or ◄ to select the front or back side of the tape, and the numeric keys and the >10 key to specify the selections.
4 Press RMS/START again to start RMS playback.

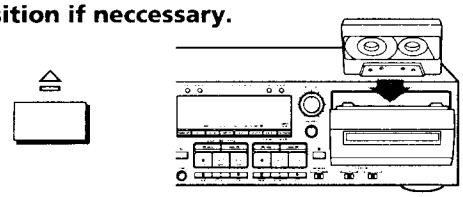
Note
For more information on the availability of Sony stereo receivers with a remote commander with RMS capability, contact your nearest Sony dealer.

Recording

Follow this procedure to record to a cassette in deck A or deck B.

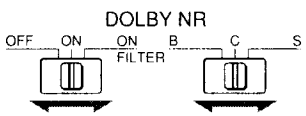


1 Insert a cassette.
Wind the tape to the recording starting position if neccessary.

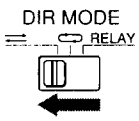
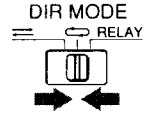


2 Perform automatic calibration, if desired (see page 17).
If not, go to step 3.

3 Set DOLBY NR.



4 Select the side(s) to be recorded.

To record on one side	
To record on both sides	

Note
Even at the ⇄ position, recording automatically stops when the tape reaches the end of reverse side.

5 Press ● on the deck to be used to enter the recording pause mode.

Note
The direction indicator for the side opposite the specified one will flash for three seconds to indicate that recording is possible on that side also. If, however, the tab for that side has been removed to prevent recording, the indicator will not flash.
If the tab has been removed from either side A or B, recording is impossible on the side(s).
To record on a tape that is protected, cover the respective hole with tape. See "Protecting a Recording" on page 14.

6 Play the program source to be recorded.

7 Turn REC LEVEL to adjust the recording level.

See "Adjusting the Recording Level" on page 14.

8 Turn BALANCE to adjust the balance.

9 Restart the program source, if required.

10 Start recording.

To record on the front side of the cassette	
When ▷ is on	Press ▷ once or ❚❚.
When ◁ is on	Press ▷ twice.

To record on the reverse side of the cassette	
When ◁ is on	Press ◁ once or ❚❚.
When ▷ is on	Press ◁ twice.

Note
Pressing ▷ or ◁ twice will cause the unit first to change tape direction and then start recording in that direction.

To stop recording
Press the ■ button on the respective deck.

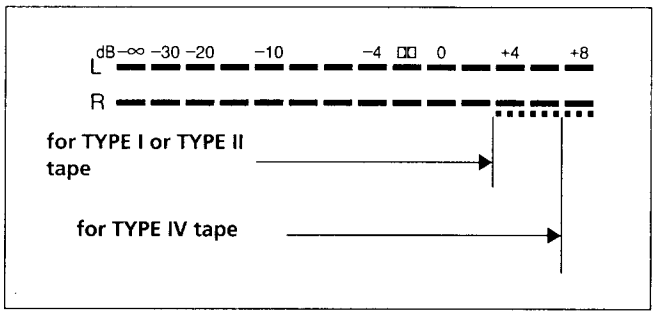
Recording

Adjusting the Recording Level

The proper recording level, which differs according to the tape type, is indicated on the peak level meter for each tape type.
Adjust the REC LEVEL control as high as possible without exceeding the recommended range for the inserted tape.

Peak level meter readings by tape type

Recommended maximum peak level meter readings.



Tips on recording level adjustment

Setting the recording level too low will produce a hissing sound, while setting it too high will produce distortion. Generally, the proper recording level for high and low frequencies is lower than that for middle frequencies. When recording program sources with many high and low frequencies, set the level to a relatively low position, then make adjustments according to recording results.

Recording FM Broadcasts with the Dolby NR System

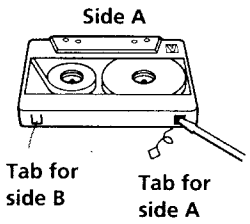
If your tuner does not have a multiplex filter, or, if equipped, the filter is not working effectively, set the respective DOLBY NR switch to FILTER ON when recording FM broadcasts with the Dolby NR system.
The multiplex filter eliminates remnants of the 19 kHz stereo carrier and 38 kHz subcarrier signals which may impair the operation of the Dolby NR system. Be sure to set the respective DOLBY NR switch to FILTER ON when using the Dolby NR system.

What Is the Dolby HX PRO system?

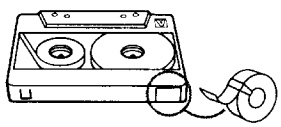
The Dolby HX PRO system provides precise bias control during recording to reduce distortion and improve linearity in the high-frequency range. The result is recorded sound that is highly faithful to the original. Since the HX PRO system operates only during recording, the same high-quality sound is produced even during playback on other tape decks. The HX PRO system is independent from the Dolby NR system and is unaffected by the Dolby NR setting.

Protecting a Recording

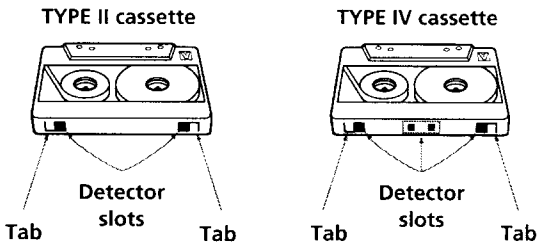
To protect a recording on side A or B
Break out the respective tab.



To record on a cassette that is protected
Cover the respective hole with tape.



When using TYPE II or TYPE IV cassettes
Be careful not to cover the detector slots which are necessary for automatic tape-type detection.



Cassette care

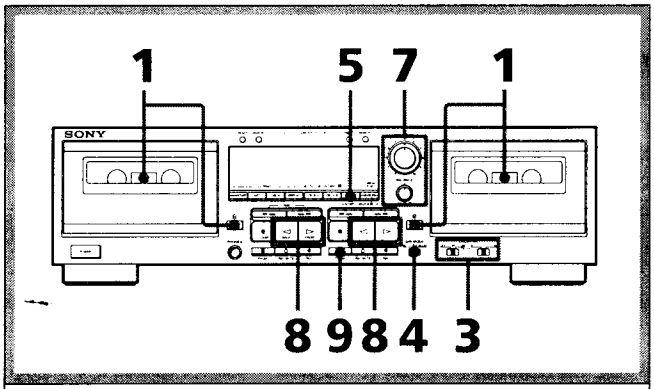
- Avoid touching the tape surface of a cassette to prevent contamination of the heads by dirt, dust, or oil on the skin.
- Keep cassettes away from equipment with magnets, such as speakers and amplifiers, as erasure or distortion of the recorded tape could occur.
- Do not expose cassettes to direct sunlight, extremely cold temperatures, or moisture.

Note on cassettes longer than 90 minutes

We do not recommend the use of cassettes longer than 90 minutes except for long continuous playback.

Recording the Same Source on Both Decks — Simultaneous Recording

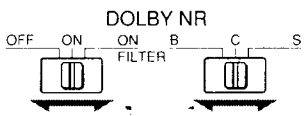
The Simultaneous Recording function allows you to record the same source to cassettes in decks A and B at the same time.



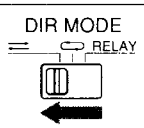
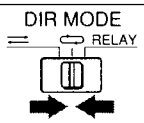
1 **Insert cassettes for recording into both decks.**

2 **Perform automatic calibration, if desired (see page 17).**
If not, go to step 3.

3 **Set DOLBY NR.**



4 **Set DIR MODE.**

To record on one side	
To record on both sides	

5 **Press A+B REC to place both decks into recording pause mode.**

6 **Play the program source to be recorded.**

7 **Adjust the recording level and balance (see pages 13 and 14).**

8 **Select the side from which to start recording.**

To start recording **from the front side,** press ▷.

To start recording **from the reverse side,** press ◁.

9 **Press II of the deck B to start recording.**

To stop Simultaneous Recording

Press the ■ button on the respective decks.

If the A+B indicator flashes three times

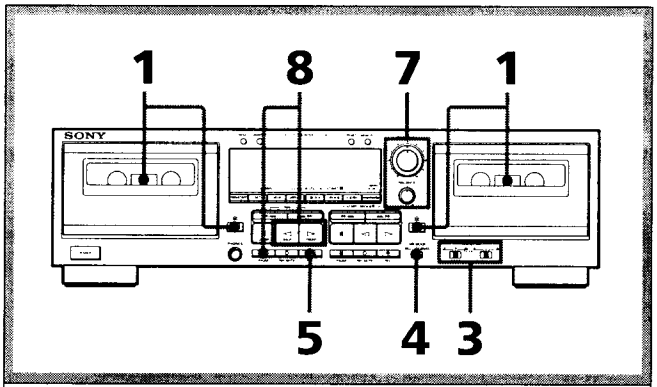
A tab is missing for one of the sides selected for recording. Cover the hole with tape (see page 14).

Using the II and O buttons during Simultaneous Recording

Pressing the II or O button on deck B during Simultaneous Recording activates the respective function on both decks at the same time. The II and O buttons on deck A are disabled during Simultaneous Recording.

Recording on Both Decks in Succession — Relay Recording

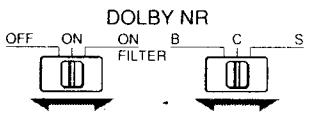
The Relay Recording function can be used to make a continuous recording that starts on a cassette in deck A and ends on a cassette in deck B.



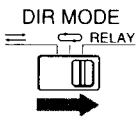
1 **Insert cassettes for recording into both decks.**

2 **Perform automatic calibration, if desired (see page 17).**
If not, go to step 3.

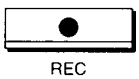
3 **Set DOLBY NR.**



4 **Set the direction mode to RELAY.**



5 **Press ● to place deck A into recording pause mode.**



6 **Play the program source to be recorded.**

7 **Adjust the recording level and balance (see pages 13 and 14).**

8 **Press II, ◁ or ▷ on deck A to start recording.**

To record on the front side of the cassette	
When ▷ is on	Press ▷ once or II.
When ◁ is on	Press ▷ twice.

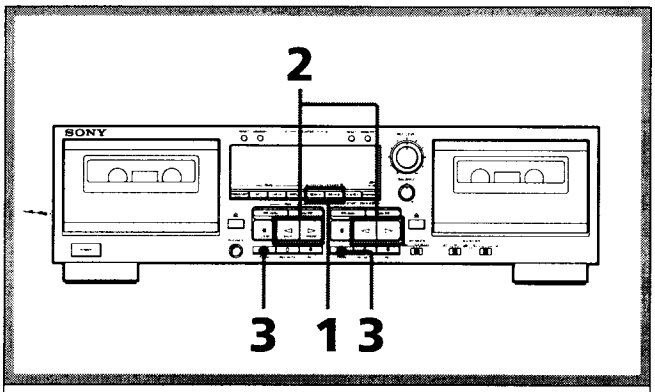
To record on the reverse side of the cassette	
When ◁ is on	Press ◁ once or II.
When ▷ is on	Press ◁ twice.

To stop Relay Recording
Press the ■ button on the deck which is recording.

When Relay Recording on reverse side of the cassette in deck A has finished
Recording continues on deck B in the direction specified by B deck's tape direction indicator. If the ◁ indicator is on, Relay Recording stops when the reverse side of the cassette in deck B ends.

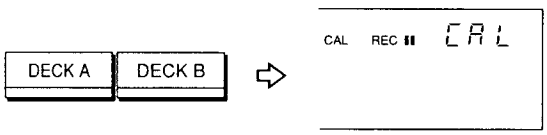
Automatic Bias Current and Recording Level Calibration

Though the Automatic Tape Selection (ATS) system in your unit automatically sets the equalization characteristics, bias current and recording level to suit the magnetic properties of each tape type, doing the automatic calibration procedure below for the bias current and recording level may allow you to get even better recording results, especially in conjunction with the Dolby NR system.



1 Press AUTO CAL DECK A or DECK B.

The CAL indicator on the display panel lights up, CAL appears on the counter and the unit enters recording pause mode.

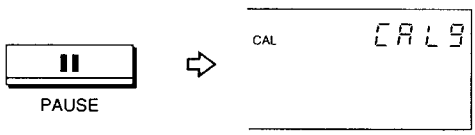


2 Press ▷ or ◁ to select the side to be recorded.

To select **the front side,** press ▷ .
To select **the reverse side,** press ◁ .
If there is no response when you press either button, that side is record protected and cannot be used for recording.
See "If the cassette is record protected" on next page.

3 Press ▮▮ on the respective deck.

The unit fastwinds a short distance, the counter begins counting down from 9 to 0 and the unit performs recording, rewinding and playback as part of the calibration process.



After automatic calibration is completed, the tape rewinds to the original position, the counter returns to normal and the unit stops.
The respective deck indicator lights up.

4 Continue with step 3 on page 13 to record a source.

To cancel the automatic calibration function

Press the ■ button on the respective deck.

Notes on recalibration

As long as the unit stays on, all calibration data are saved and applied by the system whenever you insert a cassette of the same type (I, II or IV).
The CAL indicator lights up when existing calibration data are applied. However, since cassettes of the same type also vary in their characteristics, we recommend that you repeat the automatic calibration procedure each time you insert a new cassette.

To recalibrate:

1 Insert the cassette.
The CAL indicator lights up.
2 Press AUTO CAL DECK A or DECK B.
The CAL indicator turns off and the unit recalls the existing calibration data for that tape type.
3 Continue from step 1 of the automatic calibration procedure.

Automatic Bias Current and Recording Level Calibration

Notes

- Since the unit records a test tone on the tape during automatic calibration, recorded material on the tape is erased where the test tone is recorded.
- We recommend the use of relatively new tape and clean heads to obtain the best calibration results. Excessively worn tape or dirty heads may result in incorrect calibration values.
- All calibration data are erased when you turn off the unit.
- The automatic calibration function works only when both decks are stopped.
  When automatic calibration is being done on one deck, playback is disabled on the other deck.
- It is unnecessary to select the Dolby NR system when performing automatic calibration since the Dolby NR setting does not affect the calibration results.

If the CAL indicator flashes continuously

The automatic calibration process has been interrupted by:

— The end of the tape. Reverse the tape direction or fastwind to a new position that allows recording of the test tone.

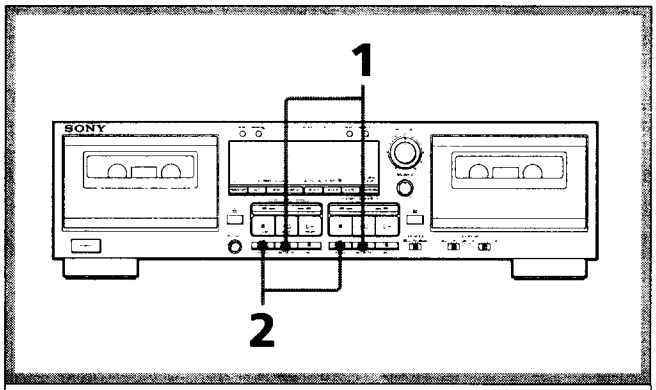
— Damaged tape or dirty heads. Change the cassette or clean and demagnetize the heads.

If the cassette is record protected

- If both record-protect tabs have been removed (see page 14), the CAL indicator flashes three times and automatic calibration cannot be performed.
- If only the selected side is protected, the direction indicator for the other side flashes and calibration is possible only in that direction.
- If you attempt to change from an unprotected to a protected side in step 2, the unit will not respond and automatic calibration is possible only in the selected direction.

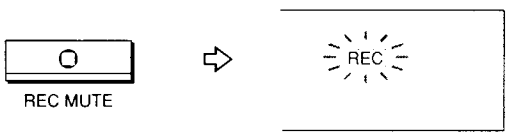
Inserting a Blank Space During Recording — Record Muting

The Record Muting function allows you to insert a four-second blank between selections to enable proper Multi-AMS operation (see page 9), or replace unwanted recorded material with a blank of any length.



1 While recording, press and release ○.

The REC indicator starts to flash. During this time, no incoming signals are recorded on the tape.
After four seconds, the ❚❚ indicator lights up and the unit enters recording pause mode.



2 Press ❚❚ to resume recording.

Note

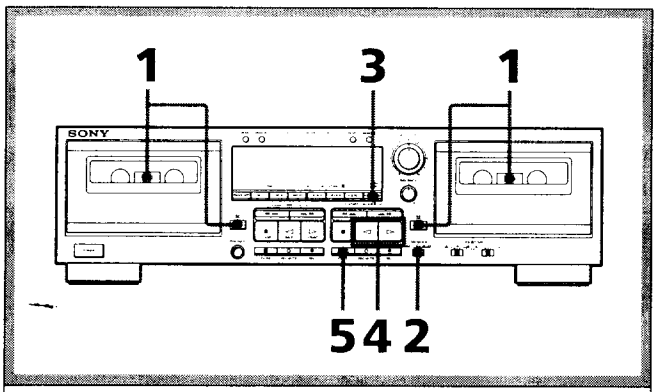
Pressing the ○ button on deck B during normal-speed dubbing (see page 19) does not affect playback on deck A.

To create a blank longer than four seconds

Press the ○ button for the specified length of time. After four seconds, the REC indicator flashes at a faster rate. When you release the ○ button, the ❚❚ indicator lights up and the unit enters recording pause mode.
Press the ❚❚ button to resume recording.

Dubbing a Tape

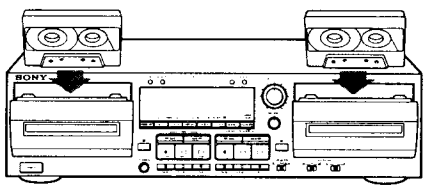
Use the dubbing function to copy a tape in deck A to a tape in deck B. High-speed dubbing is convenient for dubbing entire tapes while normal-speed dubbing is handy for tape editing.



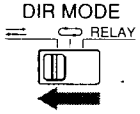
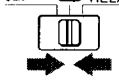
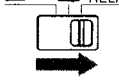
1 Insert cassettes into both tape decks.

Recorded tape into deck A

Blank tape into deck B



2 Select the direction mode.

One side	DIR MODE ⇄ ⊃ RELAY 
Both sides	DIR MODE ⇄ ⊃ RELAY  Dubbing of the reverse side starts independently of deck A.
	DIR MODE ⇄ ⊃ RELAY  Dubbing of the reverse side starts simultaneously with deck A.

3 Press HIGH/NORM.

To select **normal-speed dubbing,** press HIGH/NORM once.
To select **high-speed dubbing,** press HIGH/NORM twice.

The HIGH or NORM indicator lights up.

4 Select the side on which to start dubbing.

To dub **from the front side,** press ▷.
To dub **from the reverse side,** press ◁.

5 Press II on deck B to start dubbing.

To stop dubbing

During normal-speed dubbing, press the ■ button on deck B.
During high-speed dubbing, press the ■ button on either deck A or B.

During high-speed dubbing

Only the ■ button is operative.

If the NORM or HIGH speed indicator flashes three times

Either one or both tabs of the cassette inserted into deck B have been removed, making dubbing impossible for that side. Cover the hole(s) with tape (see page 14).

It is unnecessary to adjust the recording level and select the Dolby NR system

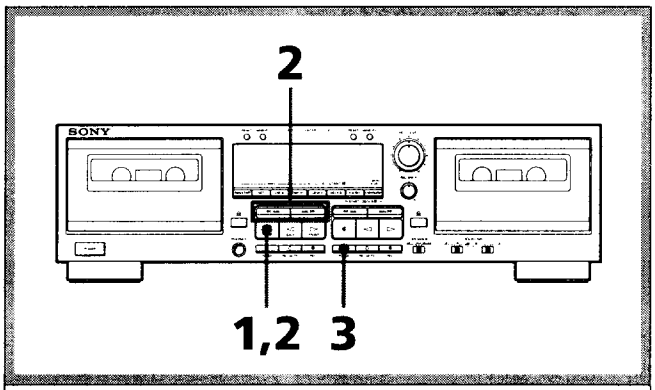
The tape in deck B is automatically recorded with the same recording level and Dolby noise reduction system as the original in deck A.
The Dolby system must, however, be set to match the tape in deck A when the sound is monitored during normal-speed dubbing.

Note on tape dubbing

If the sound is affected by the proximity of a television set during high-speed dubbing, turn the television set off or move it away from the deck.

Dubbing Only Specific Portions

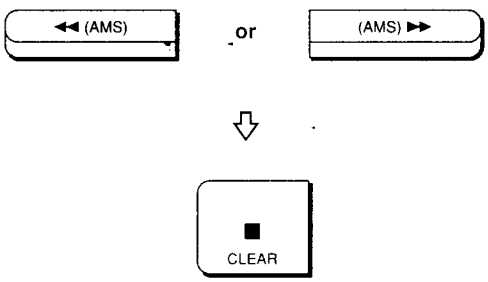
Follow this procedure to dub only specific portions of selections from a cassette in deck A to a cassette in deck B. Note that this is only possible in the normal-speed dubbing mode.



1 **During dubbing, press ■ on deck A at the start of a selection to be skipped.**

Deck A enters the stop mode and deck B enters the recording pause mode.

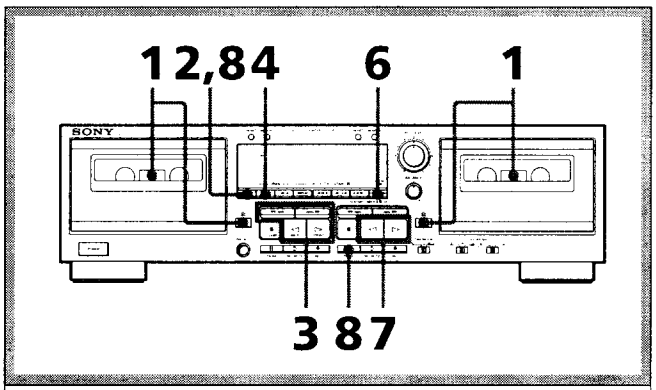
2 **Locate the starting position on deck A of the portion to be dubbed.**



3 **Press II on deck B to resume dubbing.**

Dubbing Selections in a Specified Order — RMS Dubbing

Follow this procedure to dub selections being played back from an RMS program. Note that RMS dubbing takes place only at normal playback speed.



1 **Insert cassettes into both tape decks.**

2 **While both decks are stopped, press RMS/START.**

3 **Press ▷ (FRONT) or ◁ (BACK) to select the front or back side of the tape in deck A, and ◄◄ or ►► to specify the selection.**

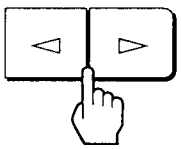
4 **Press SET to program a selection.**

5 **Repeat steps 3 and 4 to program other selections.**

6 **Press HIGH/NORM once to change the unit to dubbing standby mode.**

Maintenance

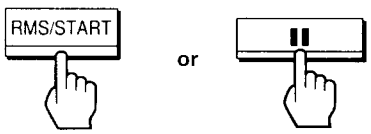
7 Select the side of the tape in deck B to be dubbed.



To dub **on the front side,** press ▷.
To dub **on the reverse side,** press ◁.

Prior to the start of RMS dubbing, you can make a blank space of four seconds or more on the tape in deck B by pressing ○ on deck B. For details, see page 18.

8 Press RMS/START or II on deck B to start dubbing.



Deck B enters recording pause mode while deck A searches for the selection to be played. When playback starts on deck A, dubbing automatically starts on deck B. This is preceded by the recording of a 10-second blank on the tape in deck B if you begin dubbing right after:

- you insert the cassette into the deck.
- you fastwind the tape by pressing ◀◀ (or ▶▶) allowing the deck to stop automatically when the tape reaches the end.

To stop RMS dubbing

Press the ■ button on deck B. RMS dubbing stops and the unit returns to RMS mode.

Cleaning the Heads and Tape Path

Clean all surfaces over which the tape travels after every ten hours of operation to guard against:

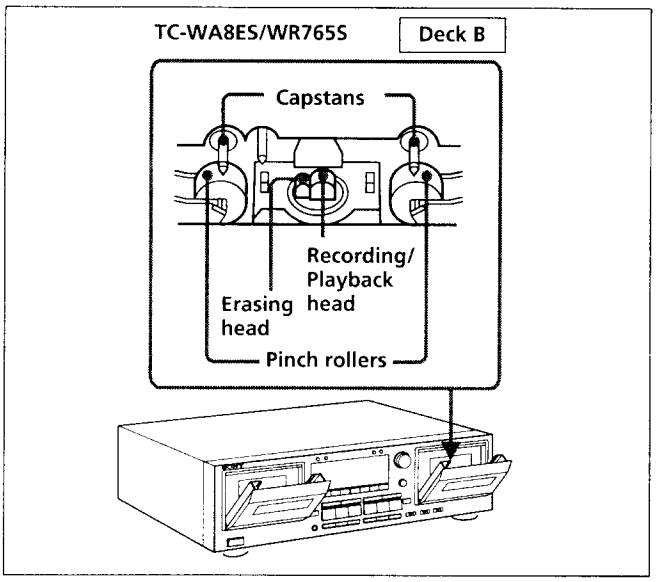
— low-quality sound
— a decrease in sound level
— excessive wow, flutter or drop-out
— incomplete erasure
— impairment of recording function

To obtain high-quality recorded sound, we recommend cleaning before every recording.

1 Press ⏏ to open the cassette holder. Grasp the front holder on both sides and gently lift to remove it.

2 With the unit turned off, wipe the heads, the pinch rollers and the capstans with a cotton swab slightly moistened with alcohol or a commercially available cleaning fluid for tape decks.

3 Replace the cassette holder.



Do not insert a cassette until the cleaned areas are completely dry.

Demagnetizing the Heads

After 20 to 30 hours of use, or when you notice hiss and/or loss of high frequencies, the residual magnetism built up on the heads should be removed.

1 Turn off the power.

2 Demagnetize the heads with any commercially available demagnetizer.
Refer to the instruction manual of the demagnetizer for detailed instructions.

Specifications

Recording system 4-track 2-channel stereo
Fastwinding time Approx. 90 sec. (with Sony C-60 cassette)
Bias AC bias
Signal-to-noise ratio (at peak level and weighted)

Cassette (Dolby NR OFF)	Type IV	Type II	Type I
	58 dB	57 dB	55 dB

S/N ratio improved (approximate values)
with Dolby B NR on: 5 dB at 1 kHz; 10 dB at 5 kHz
with Dolby C NR on: 15 dB at 500 Hz; 20 dB at 1 kHz
with Dolby S NR on: 10 dB at 100 Hz; 24 dB at 1 kHz

Harmonic distortion
0.4% (with Sony Type I, 160 nWb/m, 315 Hz, 3rd H.D.)
1.8% (with Sony Type IV, 250 nWb/m, 315 Hz, 3rd H.D.)

Frequency response (Dolby NR OFF)

Cassette / Model	Type IV cassette	Type II cassette	Type I cassette
TC-WA8ES/ WR765S	30 - 18,000 Hz (±3 dB, IEC) 30 - 13,000 Hz [±3 dB (–4 dB) recording]	30 - 17,000 Hz (±3 dB, IEC)	30 - 15,000 Hz (±3 dB, IEC)

Type IV: Sony Type IV (METAL)
Type II: Sony Type II (HIGH)
Type I: Sony Type I (NORMAL)

Wow and flutter ±0.13% W.Peak (IEC)
0.07% W.RMS (NAB)
±0.18% W.Peak (DIN)

Inputs

Line inputs (phono jacks)	Sensitivity	0.16 V
	Input impedance	47 k ohms

Outputs

Line outputs (phono jacks)	Rated output level	0.5 V at a load impedance of 47 k ohms
	Load impedance	Over 10 k ohms
Headphones (stereo phone jack)	Output level	1 mW at a load impedance of 32 ohms

General

Power requirements Model for U.S.A. and Canada: 120 V AC, 60 Hz
Model for Australia: 240 V AC, 50/60 Hz
Power consumption 28 W
Dimensions Model for U.S.A. and Canada: Approx. 430 × 123 × 290 mm (w/h/d) (17 × 4 7/8 × 11 1/2 inches)
Model for Australia: Approx. 430 × 123 × 300 mm (w/h/d) (17 × 4 7/8 × 11 7/8 inches) including projecting parts and controls
Mass Approx. 4.6 kg (10 lbs 3 oz)

Supplied accessories

Audio connecting cords (2)

Optional accessories

Remote commander RM-J902

Design and specifications are subject to change without notice.

Troubleshooting Guide

The following trouble checks will help you correct the most common problems encountered with your tape deck. Should any problems persist after you have made these checks, consult your nearest Sony dealer.

Before proceeding with these trouble checks, verify that:
- The power cord is firmly connected.
- The amplifier connections are firmly made.
- The heads, capstans and pinch rollers are clean.
- The amplifier controls and switches are correctly set.

Function Buttons and Tape Transport Problems

Symptom	Cause	Remedy
The function buttons do not work.	The cassette holder is not fully closed.	Close the holder completely.
	The cassette is not properly inserted.	Insert the cassette correctly.
	You pressed the button immediately after turning on the power.	Wait until the ▮▮ indicator stops flashing.
The ● button does not work.	There is no cassette in the holder.	Insert a cassette.
	The record-protect tab has been removed from the cassette.	Cover the hole with tape. (See page 14.)
The automatic shut-off mechanism operates before the end of the tape .	The tape is slack.	Take up the tape slack.
	The cassette shell is deformed.	Use another cassette.
	The Memory Play function is on.	Press the MEMORY button to turn off the Memory Play function.
Excessively loud tape transport noise during fastwinding.	This noise is caused by the cassette and is not a mechanical problem.	—
The ⏏ button does not work.	This occurs when the unit is playing back or recording.	Press the ■ or ▮▮ button to stop playing back or recording first.
	There has been a power failure or the power cord has been disconnected during tape operation.	Reconnect the power.

(Continued on next page)

Troubleshooting Guide

(Continued from previous page)

Recording and Playback Problems

Symptom	Cause	Remedy
Recording or playback cannot be made or there is a decrease in sound level.	The recording/playback and erasing heads are either dirty or magnetized.	Clean or demagnetize the heads.
	Improper connection.	Make the connections properly. (See page 5.)
	Improper setting of the amplifier controls.	Set the amplifier controls to the appropriate positions
Excessive wow, flutter or dropout.	The head, capstan or pinch roller is dirty.	Clean in accordance with the instructions on page 21.
Incomplete erasure.	The erasing head is dirty.	Clean the erasing head. (See page 21.)
Increased noise or poor reproduction in high frequencies.	The head is magnetized.	Demagnetize the head. (See page 21.)
Unbalanced tone in high frequencies.	Improper setting of the DOLBY NR switches.	During playing back, set the switches to the same position used in recording.
	The unit is placed near a television set.	Move the deck away from the television set.
The specified selection cannot be located even when Multi-AMS is on.	There is noise in the space before the selection.	Rerecord the tape if you can, and insert a blank space of four seconds before the selection using the ○ button.
	The space before the selection is less than four seconds long.	
	The ▶▶ (or ◀◀) button was pressed immediately before the beginning of the following selection.	—
Playback begins in the middle of a selection when Multi-AMS is on.	The selection contains one of the following: — a long pause in the music — a passage of low frequencies or very low volume — a gradual increase or decrease in volume	While the tape is playing, press the ◀◀ or ▶▶ button again.

Noise

Symptom	Cause	Remedy
Hum noise.	The unit is stacked on or under the amplifier.	Separate the unit.
Noise is recorded.	The recording was made near equipment such as a television set or a color monitor, and interference has affected the recording on the tape and the Dolby NR system.	Move the unit away from the television set or color monitor.

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